

BEST AVAILABLE COPY**REMARKS**

Applicant respectfully requests that the instant application be reconsidered in light of the above amendments and the following remarks.

Summary:

Claims 1, 11, and 23 have been amended.

Claims 7 and 17 have been deleted.

No New Claims have been added.

Claim 29 has been withdrawn.

Claims 1 and 11 have been amended to recite the limitations previously recited in Claim 23. Claim 23 has been amended to further define the g' ratio of Applicant's presently claimed invention. Support for this amendment may be found on Page 27, lines 2 and 3 of the application as filed. Claims 1 and 11 have also been amended to further clarify the copolymer produced by the process have a weight average molecular weight of 20,000 to 1,000,000 g/mol. Support for this amendment may be found on Page 20, line 13 of the application as filed.

Claim 11 has been amended to further recite the limitation recited in Claim 17, rendering Claims 7 and 17 redundant. Accordingly, Claims 7 and 17 have been deleted. No new matter has been added.

RESTRICTION REQUIREMENT PURSUANT TO 35 U.S.C. §121

Claims 1-29 are pending, wherein Claims 1-29 are subject to a restriction requirement. Claims 1-29 are alleged to represent two (2) separate inventions. Examiner has divided the claims into the following two groups:

Group I, Claims 1-28 drawn to a process for preparing propylene copolymer, classified in class 526, subclass 160;

Group II, Claim 29 drawn to a propylene copolymer, classified in class 528, subclass 396;

In compliance with the Examiner's requirement pursuant to 35 U.S.C. §121, Applicant confirms the election to prosecute Group I, Claims 1-28, with traverse made during the conversation between Examiner and Catherine Bell on December 13, 2005. This election is being made without prejudice to Applicant's rights with respect to Claim 29, including the right to file divisional applications thereon. Accordingly, Claim 29 is hereby withdrawn from further consideration.

Applicant respectfully submits that the restricted species are within the same field of search, and examination of the claims as filed would expedite prosecution without requiring an unreasonable amount of additional search time. Therefore, examination of the claims as filed does not represent an undue burden.

Accordingly, Applicant respectfully requests that the Restriction Requirement be withdrawn.

Claim Objections

Item 7.

Claims 1 and 11 are objected to as being not clear what types of olefin lie in the scope of the recitation C₄-C₁₀. Applicant recites an olefin (i.e., containing a carbon-carbon double bond). Applicant limits the olefin to those comprising four to ten carbon atoms. Accordingly, the bounds of the recited limitation are clear and concise to one of ordinary skill in the art.

Item 8.

Claims 1 and 11 are objected to because R¹⁴-M²-R¹⁵ and R¹⁴-M²-R¹⁵ are identical since M² is defined as carbon in the claims. Applicant assumes the second instance of M² refers to the recitation of R¹⁴-C-R¹⁵ in the claim. Accordingly, Applicant has amended Claims 1 and 11 to remove the recitation R¹⁴-C-R¹⁵.

Item 9

Claims 5 and 15 are objected to. It is alleged Group R8 cannot be a hydrogen atom. Applicant respectfully disagrees. Bridging hydrogen atoms are well known in the

art, and are frequently encountered as a bridging atom between two or more other atoms. A good example is the B_2H_6 molecule, wherein three centers exist but only two electrons. This system is often referred to as 3C2E bonding. Accordingly, Claims 5 and 15 are readily understood by one of ordinary skill in the art.

Item 10.

Claims 11 and 15-22 are objected to as being substantial duplicates of Claims 1 and 5-21. Claim 11 has been amended to further include the limitations recited in Claim 23, and Claim 17, wherein the comonomer is ethylene. Accordingly, Claims 11 and 15-22 do further limit Applicant's presently claimed invention.

Claim Rejections Under 35 USC §102

Claims 1-7, 9-11, 15-17, and 19-22 have been rejected under 35 USC §102 (b) as being anticipated by Galimberti et al. (Macromolecules, 1999), hereinafter "Galimberti".

Applicant recites a method to produce propylene copolymers having superior properties not achievable using other metallocenes. Accordingly, Applicant has amended Claims 1 and 11 to include the limitations recited in Claim 23 to further clarify the recited process. One such superior property representative of the now recited g' ratio is the increased molecular weight of the copolymer produced according to Applicant's recited method, despite the presence of comonomer (See also Page 26, lines 5-7.) The effects of this limitation are shown graphically in Figure 1 of the application as filed. Figure 1 visualizes the invention and contrasts it with prior art copolymers, showing that Applicant's recited process results in a unique broad composition distribution of isotactic propylene units in combination with ethylene. Other differences between Galimberti and Applicant's presently claimed invention include the wt% copolymer (e.g., ethylene) disclosed in Galimberti is 44.9 to 94.0 wt% with essentially no (zero) crystallinity, compared to Applicant's Examples having from about 5 to about 25 wt% ethylene in addition to a detectable glass transition temperature and a detectable melting point (see Table 2, page 34.) Accordingly, Galimberti fails to disclose or suggest Applicant's presently claimed invention. Removal of the rejection is respectfully requested.

Claims 1-13 and 15-22 have been rejected under 35 USC §102 (b) as being anticipated by U.S. Patent No. 5,304,614 to Winter et al. (hereinafter Winter.) Winter is directed to a catalyst system for olefin polymerization. Winter exemplifies ethylene homopolymerization, and propylene homopolymerization. In the single example wherein Winter discloses copolymerization with ethylene (c.f. Example 19) Winter discloses a polymer having a Mw of 15,600 g/mol. Winter also comments that the melting point can be reduced (from that of the homopolypropylene) by ethylene as a copolymer. Accordingly, Winter discloses a process consistent with the art, wherein incorporation of a comonomer results in a decrease in molecular weight (and in turn a decrease in melting point), which is an embodiment which Applicant's presently claimed invention improves upon. Winter fails to disclose or suggest a process of copolymerization, wherein the copolymer comprises Applicant's recited properties (i.e., at least 50 wt% units derived from propylene; and

b) a ratio of two g's as determined by the formula:

$$\frac{g_{88-98}}{g_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively.) Winter fails to disclose or suggest all the limitations recited by Applicant. At best, Winter merely represents an embodiment which Applicant's presently claimed invention improves upon. Removal of the rejection is respectfully requested.

Claims 1-7, 9-11, 15-17, and 19-22 have been rejected under 35 USC §102 (b) as being anticipated by U.S. Patent No. 6,143,846 to Herrmann et al. (hereinafter Herrmann.) Herrmann is directed to polypropylene waxes having molecular weights below 7,000. Applicant has amended the claims to further clarify that the molecular weight is 20,000 to 1,000,000 g/mol. Since Herrmann fails to disclose or suggest, or to even consider propylene polymers (as opposed to a wax), much less propylene copolymers, much less propylene copolymers having all the limitations recited by

Applicant, Herrmann cannot reasonably be found to anticipate Applicant's presently claimed invention.

Claim Rejections Under 35 USC §103

Claims 23-28 have been rejected under 35 U.S.C. §103 as being unpatentable over Winter in view of Herrmann.

Examiner admits that neither reference discloses or suggest a process for producing a propylene copolymer having all Applicant's recited properties. Furthermore, Herrmann is directed to a polypropylene wax, and Winter is directed to ethylene homopolymerization, and propylene homopolymerization. As noted above, neither Winter nor Herrmann disclose or suggest Applicant's recited process. Furthermore, Herrmann fails to even disclose or suggest a polymer but is instead directed to a propylene wax. No reasonable conclusion can be drawn that the combination of Winter with Herrmann, a homopolymer with a homopolymerized wax, would result in Applicant's recited process to produce a polypropylene copolymer having Applicant's recited limitations, (i.e., at least 50 wt% units derived from propylene; and

b) a ratio of two g's as determined by the formula:

$$\frac{g_{88-98}}{g_{20-60}} \geq 1.10$$

where the subscripts, 88-98 and 20-60, refer to the wt% of copolymer eluted in GPC-DRI, and in the numerator and the denominator, g' is the weight average g' over the elution range designated 88-98 and 20-60, respectively.) Removal of the rejection is respectfully requested.

Claims 1-4, 6-14, and 16-22 have been rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 6,794,476 to Machida et al. (hereinafter Machida.)

Machida is directed to a complicated batch pre-polymerization method and polymerization conditions with a supported catalyst to produce isotactic polypropylene (Examples 1, 4, 5, and 6.) Example 2 is directed to batch copolymerization with supported catalyst in a two step process. Machida fails to disclose or suggest Applicant's presently claimed catalyst. Furthermore, Machida fails to disclose or suggest Applicant's

presently claimed process capable of producing a propylene copolymer having Applicant's recited unique characteristics. Examiner appears to suggest supplanting Applicant's presently claimed catalyst into the process disclosed in Machida in the complete absence of any teaching or suggestion to do so, followed by changing the process of Machida, again in the complete absence of any teaching or suggestion to do so to produce Applicant's presently claimed invention. Accordingly, no reasonable conclusion can be drawn that Machida obviates Applicant's presently claimed invention.

Applicant respectfully requests the rejection of the claims be removed, and the claims, as amended, be passed to allowance.

Date:

March 27, 2006

ExxonMobil Chemical Company
Law Technology Department
P.O. Box 2149
Baytown, Texas 77522-2149
Telephone No. 281/834-5982
Facsimile No. 281/834-2495

CLB:mc/clm

Respectfully submitted,

Catherine L. Bell

Catherine L. Bell
Registration No. 35,444
Attorney for Applicant

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

☐ **BLACK BORDERS**

☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**

☐ **FADED TEXT OR DRAWING**

☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**

☐ **SKEWED/SLANTED IMAGES**

☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**

☐ **GRAY SCALE DOCUMENTS**

☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**

☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**

☐ **OTHER: _____**

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.